



Bin Materials Audit

Average results from 31 R-12 School sites

From 2006 to the end of 2016

Wipe out Waste

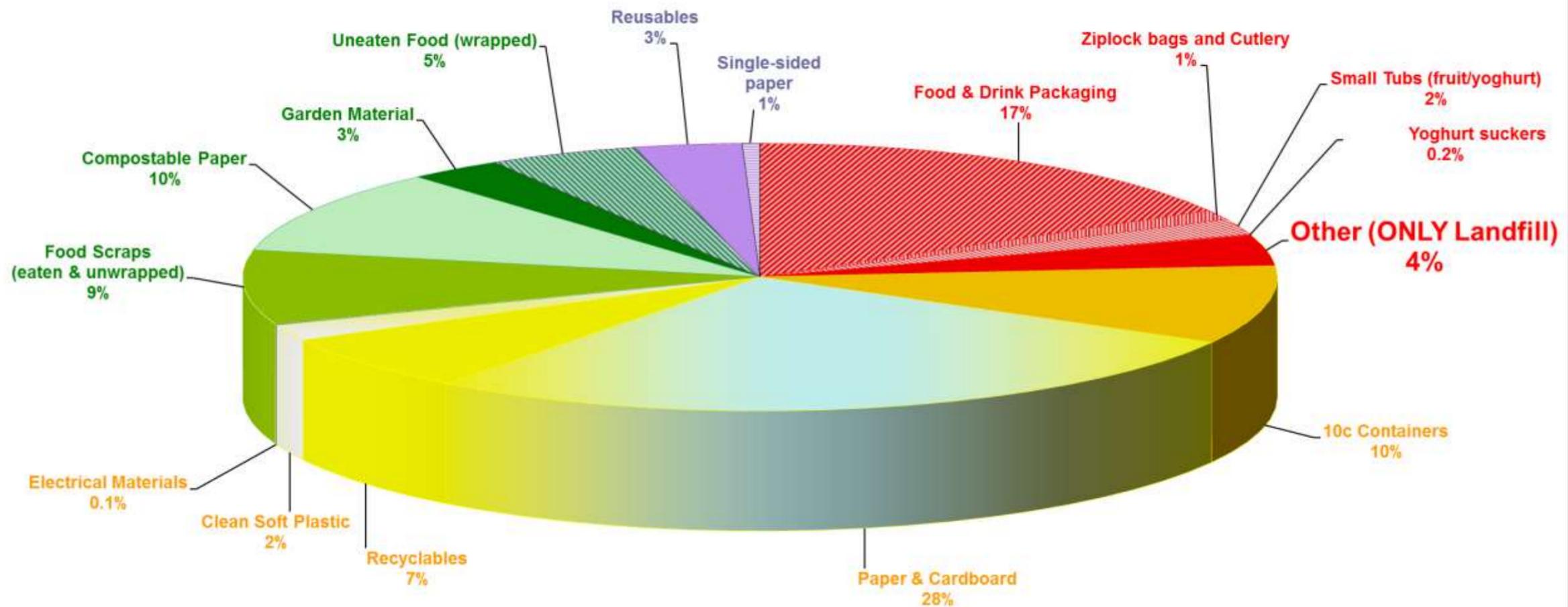
Currently **14274 Litres** per day are going to landfill for **17 486** people

This is equivalent to **0.816 Litres** per person per day.

HOWEVER – only **532 Litres (17 L/site)** HAS to go to landfill.

By **reducing, reusing, recycling** and **composting**, SA R-12 education sites **could reduce their waste to landfill by 96%**.

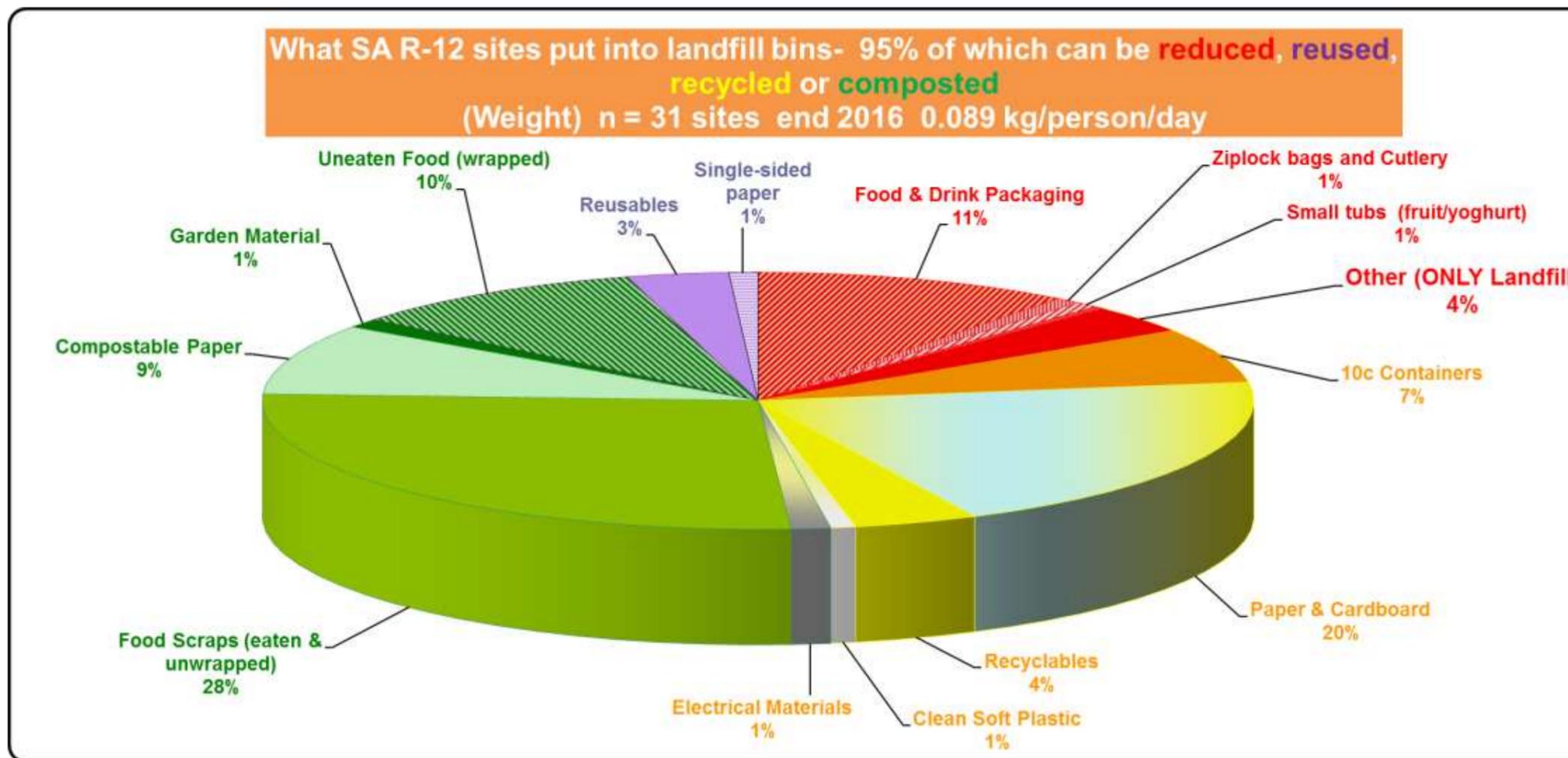
What SA R-12 sites put into landfill bins- 95% of which can be **reduced, reused, recycled or composted**
(VOLUME) n = 31 sites end 2016 0.82L/person/day



During a WOW audit, the materials are measured by volume and weight. Often information relating to landfill, recycling and resource recovery is reported by weight, as this is how we pay for landfill in metropolitan areas. We believe that volume is a more useful measure for education sites as this determines how many bins are required and also how much space in the landfill the materials will take up. Throughout this report, the volume measure is more prominent; however the weight is referred to in a few cases. The raw data and excel tables and charts have also been sent to your site. These can be used for additional classroom learning opportunities, such as a comparison and discussion around units of measurement and specifically the weight and volume.

The table below indicates the materials found in bins, by WEIGHT. While we don't **CURRENTLY** consider this to be as useful a unit of measurement for sites (**this may change when the increased landfill levy may affect the way sites are charged for collections**). Comparing heavy items (eg Food scraps with their volume) can be particularly dramatic! This may prompt the question: which unit of measurement provides us with the most useful information? This is a very important factor in developing experiments and surveys. This questioning could also be applied to information about recycling (eg some councils have high recycling rates- by weight- as they may generate more glass items than other areas which may have a higher volume- eg plastics and cardboard). Several follow up activities are at <http://www.wow.sa.gov.au/bin-materials-audit-bma.html>.

You could do weight vs volume recycling activities as homework or between classes or areas of your site.



Recyclable Materials - 46% of the total volume of materials to landfill

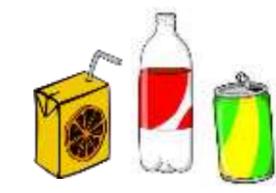
1 310 800 Litres/year of recyclable materials could be recovered from the landfill bins (from 31 sites audits).

Recyclable materials are things that could be reprocessed and turned into products again, instead of going to landfill.



Paper/Cardboard

25 400 L/site/yr which makes up 28% of the total volume of materials in the landfill bins.



10c Containers

91 containers/site/day* =20/person/year
In a year an average R-12 school could raise \$1 820

* based on averaged 2016 audit data (n= 2)



Clean Soft Plastic

This mostly comes from libraries, canteens and offices.
An average of 1 840 L/site/yr was found in the landfill bins.



Recyclables

are commonly found in OSHC, school canteens, home economics areas, and staff rooms where there is access to water for rinsing.
6 400 L/site/yr which makes up 7% of the total volume of materials in the landfill bins.



Electrical Materials

This is a growing global issue. Electrical materials should be disposed of correctly and safely.
100 L/site/yr of electrical materials were found that MUST BE disposed of differently

Recycling- 42 284 L/site/year

Paper/Cardboard recycling: The average for paper/card found in landfill bins is 28%, with 25 400 L/site/year going to landfill rather than being recycled each year. Regular reminders to both staff and students, ensuring paper recycling bins are provided next to all office bins, and containers are consistent in all rooms will help further reduce this stream.

10c Containers: An average of 91 containers were found in landfill bins at R-12 sites audited in 2016. Across all sites, this is over \$56 420/ year, or \$1820/site/year currently going to landfill. Clear pictorial signage on the 10c collection containers and placing a container next to every landfill bin will help maximise collection, plus regular reminders in newsletters. Integrating 10c bin signage and container design into the arts and technology curriculum areas encourages student ownership to increase the success of new systems (see <http://www.wow.sa.gov.au/10c-collection-systems.html> for ideas).

Clean Soft Plastic: Based on audit results, this is 1 840 L/site/year. This can be collected to take to local supermarket collections (currently) to be made into recycled plastic furniture and boardwalks- a better option than sending plastic to landfill. Your contractor may offer a collection service for this material.

Recyclables Items from the staff room, OSHC and canteen are the ONLY areas we recommend collecting these from, as there is opportunity to rinse or wipe out containers to ensure they are empty and dry enough for recycling. Only collect if you have access to a council bin.

Electrical Materials: It is important to be aware of safe disposal methods as **Electrical items** (anything with a battery or cord) and **Fluoro tubes** are banned from landfill and **MUST NOT** go into school skips or bins. For more information on e-materials disposal see www.epa.sa.gov.au/community/waste_and_recycling/e_waste
Fines from \$300 to \$30 000 can apply for inappropriate disposal.

Compostable Materials - 27% of the total volume of materials to landfill

766 800 Litres, 174 800 kg/yr (47% total weight) of compostable items could be recovered from landfill bins (from 31 sites audited).

Compostable items are things that once grew and can be returned to the earth as compost to help more things grow.

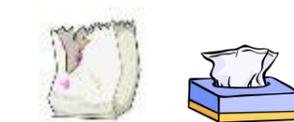
The type of composting system and ability to compost on site will depend on the size of your site and conditions specific to your area.

Food Scraps



8 400 L/site/yr of the landfill bins were food scraps - 9% of the total volume of materials in landfill bins.

Food scraps are some of the heaviest landfill items, weighing in at 3 200 kg/site/yr - 27% of total weight.



Compostable Paper

This consists of paper towel, tissues and paper bags.
9 561 L/site/yr 10% of total volume.



Garden Material

2800 L/day/site of garden materials were in the landfill bins. This commonly consists of flowers from staff areas, leaves and twigs.



Uneaten Food

4 380 L, 1 200 kg/site/yr was found in the landfill bins, often still wrapped or in an unopened packet. This was 5% of the total volume of landfill bins. Ideally this would be significantly reduced.

Composting - 24 735 L/site/year

Food Scraps: 9% of total materials being sent to landfill is the average figure for R-12 schools. This is an average of 210 L/site/ week. Collection containers could be placed next to bins at indoor eating times and perhaps moved outside at lunchtime. Consider possible enterprise options to create saleable materials, e.g. worm juice or compost that could be sold to the community, or added to the vegetable garden. It may not be viable to compost (or worm farm) everything on site- consider offering buckets of scraps to families with chooks or animals- another great way to use this valuable resource, or speak to collection contractors about options, which are much less costly than landfill collections. Most offer 660L/week organics collections for much less than the cost of sending to landfill.

Compostable Paper: 10% is the average for R-12 schools. This is 239 L/site/week. Consider collecting paper lunch-order bags, the paper hand towels from staff toilets and tissues for composting, as the paper to food scraps ratio is important for a successful composting mix. Paper towel can also be collected separately in toilets, perhaps in a green tub or bucket to reflect the colour of the compost bin that it is later transferred into. This would also make it clearer for cleaners, and could be enhanced with a graphic and word label if needed.

Garden Material: 3% is the average for R-12 schools. While very little garden material is generally found in bin audits, it is often placed directly into skips by ground-staff. Consider mulching large prunings for use on site or by local families (your local council may be able to assist).

Uneaten Food: 5% is the average for R-12 schools. Aim to reduce this by sending uneaten food home and encouraging discussions with parents about how much and what students can eat in a day. This may be particularly relevant with JP classes where whole pieces of fruit can be overwhelming, so apple cutters or slinkys can make apples easier for young students to eat. It is worth working to educate families on how much children can reasonably eat during recess and lunch, particularly in the transition from preschool to school, where eating times are much smaller and play times may be the only opportunity for important outdoor time! Work with families to ensure that it is OK for children to bring home uneaten food to eat later.

Reusable Materials – 4 % of the total volume of materials to landfill

108 800 Litres/year of reusable items that could be used again before disposal (from 31 sites audited).

This includes **114 kg/site/year** of single-sided paper, or approximately **1 142 pieces/site/year** of A4 paper that could be reused before recycling!

Items commonly include:

Pencils, plastic sleeves, pens, mugs, hats, folders, fabric, string, or materials that could be used for art activities.



Reusing – 348 L/site/year

Reusables: The items that were found could be easily reused by having a communal storage area, where reusable items can be placed and shared amongst staff/all school attendees. This can have cost savings for the school in the materials purchased - for example, saving pencils and sharpening them means less need to be purchased each year.

Single Sided Paper: Because paper is a big budget item for education sites, it is important to try and use both sides of suitable paper before recycling to make the most of this valuable resource.

Reducable Materials - 19% of the total volume of materials to landfill

562 200 Litres of materials/yr (from 31 sites audited) currently have no easy way to be managed in a school environment. This is mostly food and drink packaging which can be avoided or sent back home to reduce the amount of materials going to landfill from your site.

106 400 Litres/yr (from 31 sites audited) are in the category of 'other' - in an ideal situation, 'other' is the ONLY material that would be going to landfill. This is just 24 x 140L bins/site/yr.



Food and Drink Packaging

484 600 L/yr, or 15 639 L/site/yr

It is **20%** of the total volume of materials in landfill bins. As these items can't be recycled, reducing their use is the best option!



Ziplock Bags & Cutlery

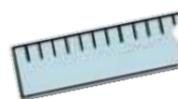
165 ziplock bags/site/day were found. This equates to **32 900/site/yr**, or around **\$1 974** of ziplock bags per site each year!



Small Tubs and suckers

There was an average of **43 tubs/site**. This equates to **8600/site/yr**, or **2200/person/yr**. And **9 yoghurt suckers /site**, which equates to **1 800/year/site**, or **600/year/person**

This costs more than **\$2 050/year/site**.



Other

Only **3 400 L/site/yr** of material which could not be reduced, reused, recycled or composted was sent to landfill. This is just **4%** of what is currently going to landfill.

OR just 24 x 140L bins/site/yr

Reducing -

Food and Drink Packaging, Ziplock Bags & Cutlery, Small Tubs:

This could be reduced by encouraging *Wipe Out Waste* or *Nude Food* days, and trying the *Less to Landfill Challenge* across the school. Reducing and avoiding packaging also links well with healthy eating strategies in consultation with parents.

Strategies that have worked well at sites include:

- Regular Nude Food or Waste Less lunch/recess days <http://www.biome.com.au/274-lunch-boxes/>;
- Parents and VIP initiatives, which may be linked to healthy eating and food garden programs;
- Bin-free days so that leftovers and packaging are taken home;
- Homemade sandwich wraps (which can make an excellent fundraiser)—see www.4myearth.com.au and <https://www.facebook.com/littlelittlekidstuff/>

For long-term reduction of packaging, education and support for parents is essential so that families are responsible for their own packaging. Most of the materials to be reduced come from families purchasing decisions, and we suggest sharing audit results with parents and the students and encouraging unpackaged food options. Newsletter articles, discussions at assembly, or new student information packs could be a way to inform families about more sustainable alternative ways to bring food to school.

Several sites have removed outdoor bins for students and staff, placing the onus on individuals to take personal responsibility for excess materials they create, and **saving significantly on time spent by staff emptying bins as well as school \$\$ spent on collection and disposal of these materials!**

Other: In an ideal situation where items are reduced, reused, recycled or composted there is very little material that MUST go to landfill. This is a long term goal to aim for which can provide a range of contextual learning opportunities and cost savings for the site. You could easily become a Zero Waste Bin free school within the next 2 years!

Currently, 2 854 800 L/year, with an average of 92 090 L/site/year, are going to landfill from the 31 audited SA R-12 schools. However, with 'ideal' collection and avoidance systems in place, the total daily volume of material to landfill for an entire school could be around

17 L/day = 3 433 L/year – or just 24 bins/site/year

This is a great long term goal to strive for, and some sites have reduced their material to landfill by more than half after conducting a bin audit. This can also deliver significant cost savings for the school and is worth discussing with finance staff.

Your site compared to State Average

When comparing between sites, a per person per day (pppd) measure is used. This allows a degree of normalisation for sites of differing sizes.

A brief comparison is shown in the table below - see the data sheets for more detailed data.

	Average of R-12 SA Sites for 2016 (n=31)
Recyclables stream	0.37
Compostables stream	0.22
Reusables stream	0.03
Landfill stream	0.20
Total Material Audited	0.82

Please ensure that your site makes contact with the council Waste/Sustainability Education Officer and NRM Education staff, particularly if you are a Sustainable School site, as they can support you with engaging staff, linking to a School Environmental Management Plan- SEMP.



For more information, questions or queries, please contact the WOW team at KESAB.

Jo - jo@kesab.asn.au

Ali - ali@kesab.asn.au

Phone: 8234 7255

Reducing - 23% of the total volume

Composting - 27 % of the total volume

Recycling - 46% of the total volume

Reusing - 04 % of the total volume